

WHAT IS CLAIMED IS:

1. A method of determining whether an individual has thrombocytopenia or is at risk for developing thrombocytopenia as a result of GPIIb-IIIa receptor antagonist treatment, the method comprising

- a. obtaining a sample comprising at least serum or plasma from the individual and platelets;
- 5 b. adding a GPIIb-IIIa receptor antagonist to the sample to form an antagonist mixture;
- c. adding a submaximal concentration of platelet agonist to the antagonist mixture to form an assay solution; and
- 10 d. assaying platelet activation in the assay solution;
wherein, an increase in platelet activation in the assay solution compared to a reference indicates that the individual has thrombocytopenia or is at risk for developing thrombocytopenia as a result of GPIIb-IIIa receptor antagonist treatment.

15 2. The method of claim 1, wherein the sample comprises whole blood from the individual.

3. The method of claim 1, wherein the sample comprises serum or plasma from the individual and platelets from an ABO-compatible donor

20 4. The method of claim 1, further comprising adding a CD32 blocking antibody prior to step a, wherein after carrying out steps a-d, a reduction in the increase in platelet activation compared to performing the method without the CD32 blocking antibody indicates the presence of pathologic anti-platelet antibodies in the sample.

25 5. The method of claim 1, wherein the sample is from a human and increased platelet activation indicates that the human is at risk for developing thrombocytopenia or thrombotic complications.

30 6. The method of claim 1, wherein the platelet agonist is adenosine diphosphate (ADP), thrombin receptor activating peptide (TRAP), iso-TRAP, or collagen.

7. The method of claim 1, wherein the GPIIb-IIIa receptor antagonist is abciximab, eptifibatide, or tirofiban.
- 35 8. The method of claim 1, wherein platelet activation is assayed by detecting a level of platelet surface P-selectin, phosphatidylserine, or leukocyte-platelet aggregates.
9. The method of claim 8, wherein flow cytometry is used to detect the level of P-selectin, phosphatidylserine, or leukocyte-platelet aggregates in the assay solution.
- 40 10. The method of claim 1, wherein flow cytometry is used to assay platelet activation in the assay solution.
11. The method of claim 1, wherein a reagent used to detect platelet activation is added to
- 45 the sample prior to adding the GPIIb-IIIa antagonist to the sample (step b).
12. The method of claim 1, wherein a reagent used to detect platelet activation is added to the antagonist mixture before the platelet agonist is added to the antagonist mixture.
- 50 13. The method of claim 1, wherein a reagent used to detect platelet activation is added to the sample with the GPIIb-IIIa antagonist or to the antagonist mixture with the platelet agonist.
14. The method of claim 1, wherein the method includes the step of determining the Fc γ RII genotype of platelets used in the assay.
- 55 15. The method of claim 14, wherein the platelets are from the subject.
16. The method of claim 14, wherein the platelets are from a donor.